

AMENDMENTS TO THE CLAIMS:

The listing of claims shown below will replace all prior versions, and listings of claims in the Application:

1. (Currently Amended) An addressable biologic electrode array comprising:

an array of electrodes disposed on a support, the array of electrodes being selectively addressed and driven using a plurality of memories, a separate memory being associated with each electrode of the array, the driven electrodes being driven at one of a plurality of stimulus levels by a source of electrical current or voltage external to the array.

2. (Previously Presented) The device of claim 1, further comprising a polymer layer disposed above the array of electrodes.

3. (Previously Presented) The device of claim 1, wherein the polymer layer is permeable to water.

4. (Previously Presented) The device of claim 1, wherein the polymer layer is permeable to counter-ions.

5. (Previously Presented) The device of claim 3, wherein the polymer layer is permeable to electrolysis reaction gases.

6. (Previously Presented) The device of claim 1, wherein the polymer layer has a thickness within the range of approximately 1 nanometer to approximately 100 microns.

7. (Previously Presented) The device of claim 1, further comprising a

biomolecule coupled to the polymer layer.

8. (Previously Presented) The device of claim 7, wherein the biomolecule comprises nucleic acids.
9. (Previously Presented) The device of claim 7, wherein the biomolecule comprises amino acids.
10. (Previously Presented) The device of claim 1, wherein the stimulus level is an electrical current.
11. (Previously Presented) The device of claim 1, wherein the stimulus level is a voltage.
12. (Previously Presented) The device of claim 1, wherein the support is contained within a sample chamber.
13. (Previously Presented) The device of claim 1, further comprising a computer external to the array that is operatively coupled to the memory associated with each electrode, the computer controlling the stimulus level of the driven electrodes.
14. (Currently Amended) A method of selectively addressing and applying electrical current or voltage to electrodes in a biologic electrode array comprising the steps of:

providing an array of electrodes on a substrate, selectively addressing and driving the array of electrodes ~~being selectively addressed and driven~~ using a plurality of memories, a separate memory being associated with each electrode of the array, the driven electrodes being driven at one of a plurality of stimulus levels by a source of electrical current or voltage external to the array.

15. (Previously Presented) The method according to claim 14, wherein a polymer layer is disposed above the array of electrodes.
16. (Previously Presented) The method according to claim 15, wherein the polymer layer is permeable to water.
17. (Previously Presented) The method according to claim 15, wherein the polymer layer is permeable to counter-ions.
18. (Previously Presented) The method according to claim 15, wherein the polymer layer is permeable to electrolysis reaction gases.
19. (Previously Presented) The method according to claim 15, wherein the polymer layer has a thickness within the range of approximately 1 nanometer to approximately 100 microns.
20. (Previously Presented) The method according to claim 15, further comprising a biomolecule coupled to the polymer layer.
21. (Previously Presented) The method according to claim 20, wherein the biomolecule comprises nucleic acids.
22. (Previously Presented) The method according to claim 20, wherein the biomolecule comprises amino acids.
23. (Previously Presented) The method according to claim 14, wherein the stimulus level is an electrical current.

24. (Previously Presented) The method according to claim 14, wherein the stimulus level is a voltage.

25. (Previously Presented) The method according to claim 14, further comprising the step of providing a computer external to the array that is operatively coupled to the memory associated with each electrode, the computer controlling the stimulus level of the driven electrodes.

26. (Previously Presented) The method according to claim 14, further comprising the step of imaging the array of electrodes.